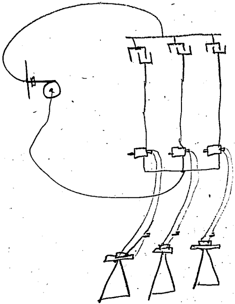
Notebook, N-01-01-02.2

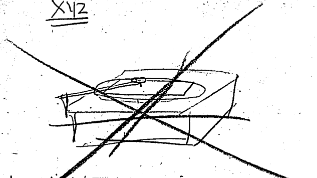
The only dated entry in this notebook is from March 1902. All entries are by Edison. The book contains notes and drawings regarding several experiments that deal mainly with electricity and electromagnetic radiation. Among the entries are items pertaining to x-rays, etheric force and "xyz rays," thermocouples, and electromotograph apparatus. Also included are scattered phonograph drawings. On the last page is a list of mine properties in Canada. The book contains 61 numbered pages, some of which are blank, followed by approximately 20 unnumbered pages.

4"



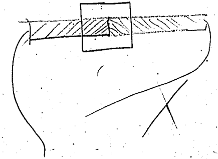
This book
Mch 9 1902

X42



~~Use disk talking machine arranged with a feed screw~~

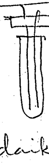
Thermo



a ferrule of a metal having a very small Expansion is reamed out and the Thermo Couple are ground to size that gives fit when Cold - on heating They Expands more than ferrule & is thus under Compression — iron probably best.

~~Try compin~~

Try mixture of the salts of a good Thermo alloy & reduce by Zinc & Compress also plate the alloy if it will plate.



See if passing 100 volt thro non conducting liquids any become luminous in the dark -

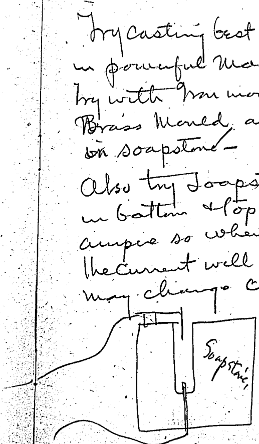
put in sealed tubes cold saturated sol of salts add some Extra. Seal then heat to disolve Extra Crystals & then Cool at a certain point Crystals be formed under pressure

Crystalize some hot saturated
sol of Cuprocyanide of K
the fluorescing Kind under
powerful X ray - see if it
increases its power or diminishes
also Nit Uranium & Benzoate
which is best & other fair ones
also the Oxalate of Lithia to
see if X ray changes its
Character as Light fluorescer

also Crystalize Mixture of
Oxalate Li & Cuprocy K
& also Oxalate in platinocy/Ba
& other X ray fluorescers
see what effect it produces
as X & Light fluorescer

Try some pure Stobie ore as
Thermo, Melt & Cast some
also, it melts wonderfully Easy

Try casting best thermo alloy
in powerful Magnetic field. —
Try with Iron mould & with
Brass Mould, also ~~plaster p~~
on soapstone —
Also try Soapstone with wire
in bottom & top with 10 or 15
ampere so when ~~solidifying~~ fyed
the current will pass this
may change crystalization,



also with
256 Tuning
fork held while
Solidifying

For therms make the 5% set of all the acid forming Metals with the Base oxide metals, —
If there is anything in ~~it,~~ ~~[illegible]~~ Cr Wo Ur Mo Al Sb S ~~Te~~ Se Si should be good with Mg — Hg. Fe. Ni

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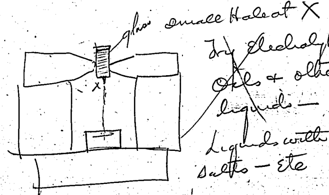
See if viscosity of a liquid changes when in Magnetic field (powerful)



~~Try Electrolytes Oils + other liquids —~~

Liquids with Mn salts — Etc

Also with Very sensitive Hydrometer —

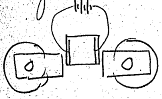
Try pressing out flat test of the thermo alloys to see if destruction of Crystals effects Emf—

Stress Tourmaline (crossed to be opaque) by Magnetism X Ray E-alternations & see Effect on light.

Be sure an make some very fine Ca tungstate mixed with ~~Lampblack~~ say powdered magnetite 400 to 600 mesh 1 of $CaWO_3$ to 2 of magnetite fine + put on paper for making sharp X ray photos

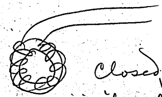
Do samething with the phosphorescers to get sharp photos — This prevents light being propagated from particles to particle & thus give hazy definition

Get glass defraction grating say 3 or 4000 lines - flash with silver, then gold, then plate in Copper bath & strip from glass

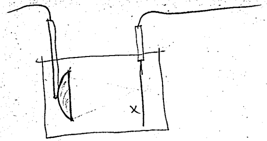


square cell with Cop sulfate Polished silver Electrode fitting cell →

placed sidewise in powerful field of mag & plated on by weak Current, see if more on one edge than the other,



Closed iron ring in oil under hydraulic pressure get throw on galv. with pressure on & pressure off +



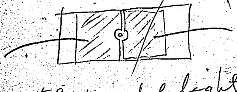
Electrode of Copper Concave &c.
focused on silver plate X
slight current, shellac back —
see if Electrolytic lines can be
focused —

Slightly acidified Solution of
Pot Iodide is sensitive to light —

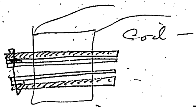
Phosph in a powerful field
mag —
ditto in Vacuum

See if passivity of Iron is
destroyed in Mag field
use polished Iron plate —

~~Use pin head drops of crystalizing
solution on polished clean glass
under Microscope
1st crystalizing — dark
2 Mag field
3rd glass statically chgd by tin foil all
around drop —~~

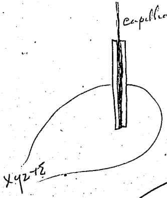


4th In powerful light,
5 sudden by heat
6 in presence of various non
Crystaliz substance
7 in different solvents —



2 tubes torsioned opp directions & pinned
1st try not Torsion then ~~twist~~ pin & try

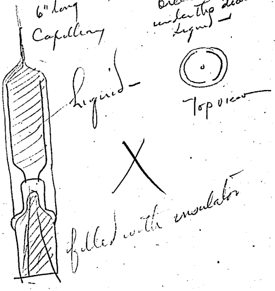
Reading in Phil Mag that dialectrics
Expand on stressing & independent of
change then XYZ & Σ
Recor this



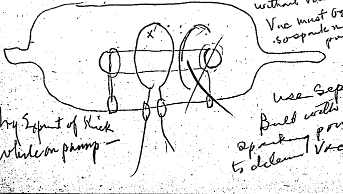
Cell with silvered plates
+ distilled water
or non condr organic
capillary changes

a better device

1st get Vac. then break Capillary under the dessicated liquid —


6" long Capillary
Liquid —
Top view
filled with insulator

Iron Cp — Silver wire x
determine Kick with or without Vac
Vac must be so spark not pass



Try Expmt of Kick while on pump —

Use Separate Bulb with sparking points to determine Vac

Battery Cell—

In the joints of seam
place a strip of silver
solder Melting about at yellow
then put in closed chamber
~~pass it~~ + melt the solder—

See last pages this book in re
action of tellurium pen—

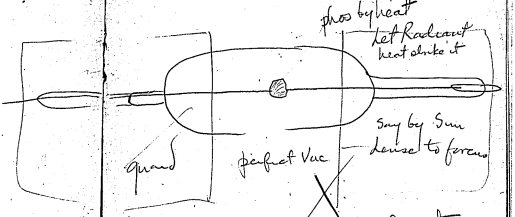
Crystalize Oxalate Li + X
+ any fluorescers in Chlorides
of great solubility also
other salts of great solubility
to see if crystals change
also from dif solvents
+ in presence of dif things
also rapid + slow crystalizing

Plate Cobalt on iron
" Copper "
Brass "
Silver "
Zinc "
Cadmium
gold —

Possibly can 1st plate Copper on iron & then plate Zinc & when heated they will alloy & produce brass & freeze to iron

Then put in Chamber heat pass H & weld the metals to iron
Think all will ~~stand~~ a yellow & probably alloy —

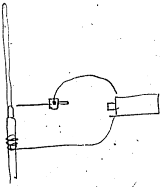
Try plate ~~[illegible]~~ iron wire with platinum by heating Chloride, then put in chamber pass H & heat high take out & draw down very gradual & give to Dally to see if can use for Lamps


phos by heat
Let Radiant heat strike it
Say by Sun lense to furnace
Quartz
perfect Vac

This will show if radiant heat pass perfect Vac & make crystal phos —

Rig up sensitive balance for Weighing so scale beam on one end is in the Cone field of large Mag see if weight of dif substances same also Hot saturated solution closed to air which on cooling Crystalizes while field is on see if change of weight

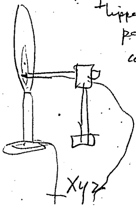
Sensitive flame



~~Sensitiveness is at the orifice of burner~~
~~Make slot fine + connect spark coil~~
~~across also use Electric spark —~~
~~also two pieces foil on a glass tip +~~
~~C etc by various devices to alter flame —~~

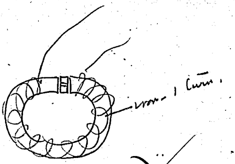
Meusels

~~Double Iodide of Mercury~~
~~+ Copper blackens at 70 Cent~~
~~If painted on paper it starts to~~
~~blacken — Heat photo also~~
~~heat of Electrolysis plat point chem~~
~~paper try if blackened by C + X Y Z~~
~~Etc~~



platina tube or Ni
tipped with grafite
pencil in inner flame
carry C or XYZ
tear off C &
~~increase~~
luminosity flame
Locally near
point

Get some 1 1½ & 2 inch
grafite acheson Carbons
for Electric furnace



over gap - take Kick & then insert the buttons made for [illegible] - see if any substance changes Kick -

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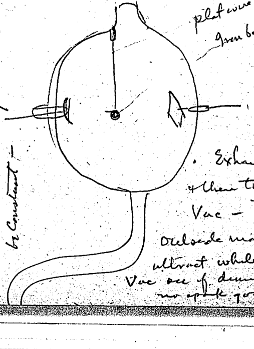
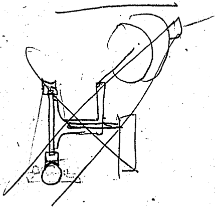

plat wire .003-
Iron ball 1/8 dia'

Look out for static attraction better use Elec mag than static be Constant -

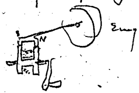
Exhaust to X ray & then to perfect Vac - try Outside mag to attract while getting Vac see if diminishes when no spark goes through

- Best Thermo Alloy -
~~put~~ 1st test, then put under greatest hydraulic pressure - Retest, also one end pressed, other not, also press several alloys also iron to iron 1 pressed other soft -



Make in addition to several hundred Chalks also make chalks or rather Cylinders for use in Emg of all the Metals, a great many alloys + Phosphides Sulphides arsenides tellurides Selenides & Condctg substances possibly platinum point rubbing on cylinder of bent thermo alloy etc will act by current to give dif friction —

Possibly the Magnetic Closed ckt Emg will be very sensitive if laminated, & permanently magnetized,

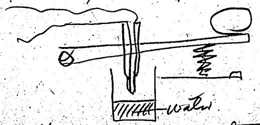


Design a Emg with a disk of glass or other transparent sub- this disk rotates, pressing against it is a metal disk connected to Emg — a ray of light or heat or X ray etc striking the friction surface through the glass changes friction might be sensitive tried —

XYZ Receiver —

Use small dry plate photo plates interposed in dark Cover between poles of a Circuit over which XYZ proceed —

~~Heat a bow of wire, dif metals worked by Key & dipping in Water & heated by battery~~



The sudden Contraction sending

an XYZ wave heat by blowpipe also – use iron Ni Co, Zn Cu pt Pd Ir Cd & other metals use ~~[illegible]~~ selective XYZ Receivers to detect wave —

Some phenomenon shown Come out of passing waves through junction of Li + Tungsten or Magnesium & Tungsten the lightest & heaviest Metals —

By making a thin plate Celluloid say 20/1000 about 4 X 4 covered with disks of metal say 1/2 dia, ~~Th~~ ~~and~~ making ~~[illegible]~~ each disk a seperate metal of all that can be got in disk form & then laying the plate of disks over a dry plate, but which is thin black paper — WE get an XYZ Recor the wire carrying XYZ being connected to each disk for 10 minutes ~~I full~~ test this with full sources of XYZ

1st test by leaving

it 24 hours on plate to see if metals themselves give any R rays — also 24 hours after metals been Exposd to arc lite rays for 1/2 hour — if nothing go on with it as XYZ Reevr -

See if Nickel will displace Cu as a Commutator bar - use break wheel & heavy spark using battery or dyna with or magnet —

It is probably that a 30 or 40 ampere arc light in a Magnesia block with hole to let rays out & a Shutter rapidly whirled with say 1/2 doz opening with give intermittent rays that will affect an XYZ Receiver - perhaps light & heat rays would neutralize XYZ Rays therefore between Shutter & brain interpose heat & light screens - also Try without Rotating Shutter for instances try all slides to see if fluoresce to arc ray through thin black paper — I ditto the sun rays

d

30.- 16- 75— 200

75=
400— 5 furnace 36—

3.

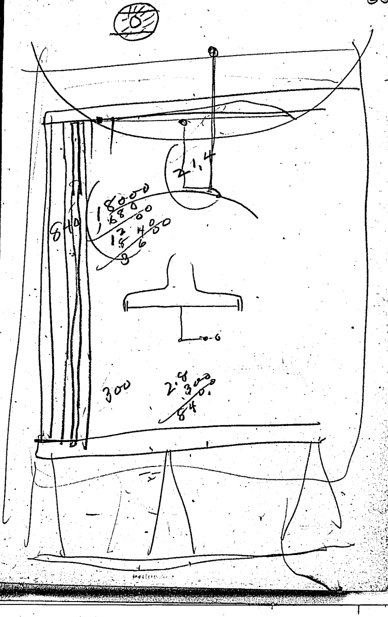
290 850
870

79—
12
158
79
948
150
1098

1100.

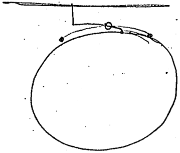
40000
4000 |

2000
160
1840


8
21,4
840
18000
1680
12400
18600
8
6
300
2.8
300
84

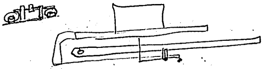
1 000 000 workers paid
2 million dollars, produce
stuff ~~that~~ sells for 3 million —
~~[illegible]~~ if.
where is the Extra Million coming
from, as most of the stuff is
sold to themselves;

6



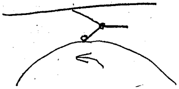
60) 1120 (18," second
60
520
480

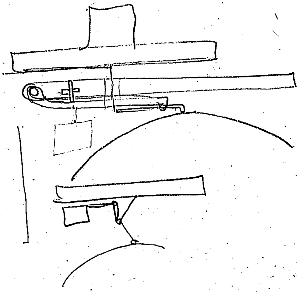
4000) 18000 (4,5
16000
20000

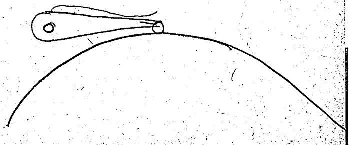


4000- sec

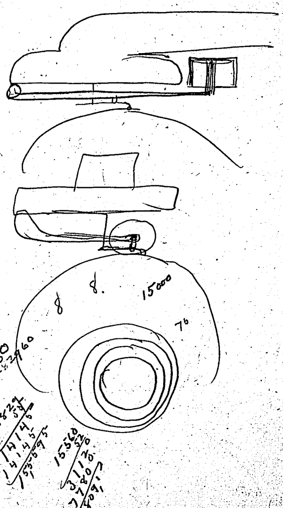
7) 160-
7
112







6



1080
2620
2160
6480
2160
282960
1
2960

2829
55
14145
14145
155595
1

15560
520
31120
7780
8091

10303 —

cells wide

1441
715
7205
1441
10087
1030315

2829
55
14145
14145
155595

10,303

715

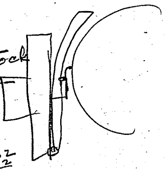
262
55
1310
1310
14410

2620
55
13100
13100
144100

2

1441 Cells –
465
7205
8646
5764 65
67000

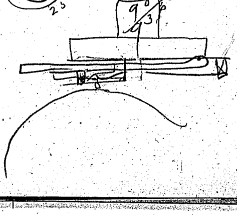
6700 stock
8600
14700



462
12
924
462
5544

250

1800 –
52
3600
9000
936



105
7
130 –

828 –

925

150
3
450 –

979
140
839

28
3
84
60
144

160
89
249
144
105

105 (21000 (200
216

200 Kwh.

14
39
126
42
54
2160
21180

446 (2,47
3600
8600
7200
1400

546
40
21,8.4

21600

247
84
988
1976
207,4

3900

1400
39
12600
4200
546

980
85
4900
784
8.33

207

140
52
280
700
7

199

980
.833
1.47
1.20
294
147
1764

52 mix-
14 flake
66

12) 462 (38
36
102

1400
60
8400

840
50
42000

979
52
9.27

20

14
20
35) 285 (7.7
245
35

1400
13
4200
1400
1820

.84

28
15
140
14
28
42

14
33
42
42
462

140

1,17

1,40

1079
66
1013

175
1000
225
240
1640

5

1400 / 1640 (1,17
1400
2400
1400
10000
9800

1400
16
8400
1400
22400

700

12) 182 (15
12
62

1400
1079
321

1080
320
1400

14
45
70
560
63
105
35

14
4
5600

1800000
168000
12000

320

3 in 10 hours $\frac{10}{1000}$ thick
6 in 20 hours

45

50 grms per hour

6) 50
83

30

40.

89

19

540000
2000000

64
8
12) 512 (42.66
48
32
24
80
72
80

1 ft sq. –

42.66. lbs 1" thick

18732 grms –

$\frac{1}{1000}$ 18 grms –
$\frac{10}{1000}$ – 180 grms –

446
42.5
2230
892
1784
18955.0

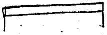
446
42
892
1784
18732

1000) 18732 (18.73
1000
8732
8000

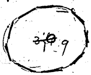
18"

6 in 24 hours 10 000 daily

6) 10 000
1666 –



12 ft.



Drums – 2 ft deep – 3 ft dia – (10660

18 on each –
6
108

100 per drum –
100 drums 10000 –

1.5) 260 000
150
1100
1000
1 000

156) 260

156) 10660 (68
936
1300

26
6
156

500 ft 1 Row – 5
250 2 Rows 10
125 4 " 20
62 8 – 40

300.

10000
3
30000

5750
30
17250

5750
1750
7500

50

1340
40
53600

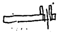
48
30

250
60
22 5000

1340
536
1876
20
37520

1876
375
2251

100
64
46



2250
25
11250
00

1.00
40
50
20
25
50
5.00
1.00
50
50
1.00
75
25
25
25
20
20
25
40
25
50
25
1340

100
100

2250
3500
375

5

225
50
1125

58.90
5.00
53.9

112.50
63.40
589

5390

1340
3500
484

.48

1104 – 11 75 Rate
2nd — 11
3rd 11 3rd Run 150

1103 – 9 -Dip 1099
2nd 10

1102 10 "
2nd 13 20% 75 Rate

1066 6
2nd 8 "

1064 7
2nd 7

1095 8
2nd 6.5

1063 11 2500 – 20% 75
2nd 11

12) 106 (9
108

20% 75

7ε – 13
13
11
11
9
9
10
11

1057 9
2nd 9
3rd 9

1054 – 3
2nd – 3
3rd – 4

1058 – 8
2nd – 10
3rd 10

10% 75 Rate
1st 2
3rd 150 Rate,

1056 – 4
2nd – 4
3rd – 4

1055 – 8
2nd 8
3rd – 9

10% – 7

1053 – 7
2nd 7
3rd – 8

18) 126 (7

1098 – 10
1099 – 8 Dups 1093 except rerun 10%
1100 9
1101 8

1097 – 10
2nd 10
1096 11
2nd – 11
1095 10
2nd 10

20% 75 Rate

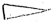
1094 13
2nd – 13
1093 14
2nd – 15

10) 117
11.7

9 –

X42

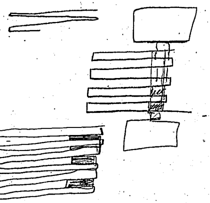
Tellurium pen gives a dash
like this no matter how long

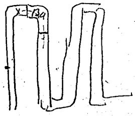


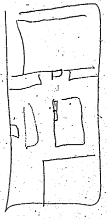
Current Kept on – This is strange
Especially as there should be
no polarization on account of the
moving paper – its the Hydrogen
pole, Why does it Cease –
perhaps – its not the Effect of
Elec – to test this See if
Te morse can be tailed out
by adding Condensers to a
Resistance, Try and get
smooth paper or an aluminum
Hydrate surface on a phono

This is queer

Thorne	9
Drury	16
[illegible]	2
Graham	16
Waters	2
Trill-	10
Totten	2
Creighton	2
Snyder	7
McKim	1
Cascaden	6
Dowling	5
Blezard	15
Falconbridge	10
Garson	17
Morgan	23
Levack	10
McLennan	7
Caprol	8
Bowell-	10
Foy-	1
Wisner	18
Norman	20
	217
	57
	160







24
57
20